



In-situ volatile organic compounds measurements with GC-MSD during the DOMINO campaign in Spain, December 2008

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This study presents a new volatile organic compounds (VOC) dataset measured during the DOMINO field campaign in December 2008. The measurements were made from a 10m tower located in a nature reserve on the south west coast of Spain. For the analysis, the VOCs were collected and concentrated on a thermal desorber unit, separated on a gas chromatograph equipped with an enantiomerically selective column, and detected by mass spectrometry. This experimental set-up allowed the measurement of anthropogenic VOCs such as ethyl benzene, and all xylene isomers, and biogenic species such as isoprene and monoterpenes.

Here we examine the VOC mixing ratio variations as a function of air mass origin to characterize the measurement site in terms of biogenic and anthropogenic influences. Mixing ratios of biogenic species were generally low, consistent with the low winter season growth rates. The ratio of (-)-alpha-pinene to (+)-alpha-pinene was variable but showed a clear dominance of the (-)-enantiomer, similar to previous results obtained with the same system in the Tropical rainforest. High mixing ratios of benzene and toluene were related to transport events from Seville (to the northeast) and Huelva (to the west). The ratio of two short lived anthropogenic species ethylbenzene and meta-xylene was found to peak at midday and indicative of the levels of oxidant levels.